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BREAKING NEWS AT **OREGONLIVE.COM**

CLACKAMAS FIRE DISTRICT NO. 1

Confusion meets a chemical cloud

Firefighters and Precision Castparts employees struggled to respond to the emergency as an orange plume escaped from a plant in a Southeast Portland neighborhood

RANDY L. RASMUSSEN/THE OREGONIAN

TOP | **A May 11 release of a chemical cloud at the company's titanium plant drew more than 90 firefighters as well as decontamination crews. No one was injured in the incident.**

ABOVE | **Precision Castparts Corp. has operated plants along Johnson Creek Boulevard for more than 50 years, with neighborhoods growing around it.**

By SCOTT LEARN and NATALIE FEULNER
THE OREGONIAN

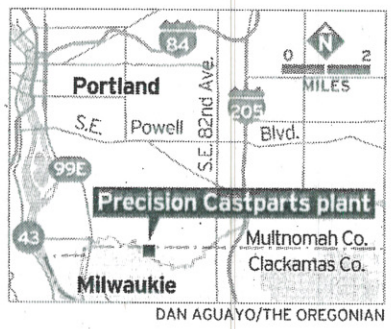
Sometime after 5 p.m. on May 11, two workers at Precision Castparts Corp.'s titanium parts plant perched on the roof and opened a door to the plant's chemical mill.

A thick, orangish plume, mainly nitrogen dioxide and some hydrofluoric acid, spewed out into the misty evening. They left, fast.

What firefighters call one of Oregon's most significant hazmat incidents in a decade had begun.

About a half-hour before, power plummeted on the main line to the plant, apparently the unintended result of maintenance by Portland General Electric two weeks earlier on a switch across the street.

The timing wasn't good: A 519-pound titanium aircraft engine part was five minutes from being pulled out of a bath of diluted acid in the mill to remove a thin skin of brittle processing metal. The power drop flipped overload controls for both the hoist that lifts the part out of the acid and the scrubber system that captures hazardous chemicals formed during the bath.



DAN AGUAYO/THE OREGONIAN

Smelling fumes, the chemical mill workers got out.

The two workers on the roof had hoped to get in through the roof door and reset the overload switch to the scrubber, inside a locked, high-voltage box in the chemical room's mezzanine.

Instead, they called 9-1-1.

Thirty-two hours later, the incident was over. In between, firefighters ordered neighbors in nearby homes to stay indoors, a community alert system failed, and firefighters and the company struggled to respond.

The Oregonian reviewed records from the incident, scrutinized Precision Castparts' track record and interviewed the players.

The review showed confusion reigned in the opening hours: which chemicals were in play, which hazards in addition to the chemical cloud were present and why fail-safe controls didn't work as expected. Key details still aren't clear.

Firefighters were frustrated at receiving belated information about plant operations and at finding employees in the evacuation zone well after the incident began. The company faced evacuation orders that limited its ability to solve the problem. Company officials say subsequent fire reports exaggerate the incident's risks.

No one was injured, though two firefighters and two workers were taken to the hospital as a precaution. Company officials say they're making changes to address the problems that night.

But they say the cloud never left the

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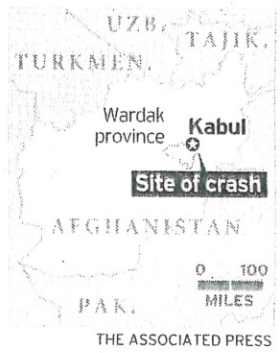
Deadliest day ever in Afghan war

Elite Navy SEALs are among 30 Americans killed as a helicopter is downed during a combat mission

By SOLOMON MOORE and KIMBERLY DOZIER
THE ASSOCIATED PRESS

KABUL, Afghanistan — Insurgents shot down a U.S. military helicopter during fighting in eastern Afghanistan, killing 30 Americans, most of them belonging to the same elite Navy SEALs unit that killed Osama bin Laden, as well as seven Afghan commandos, U.S. officials said Saturday. It was the deadliest single loss for American forces in the decade-old war.



THE ASSOCIATED PRESS

The downing was a stinging blow to the lauded, tight-knit SEAL Team 6, months after its crowning achievement. It was also a heavy setback for the U.S.-led coalition as it begins to draw down thousands of combat troops fighting what has become an increasingly costly and unpopular war.

None of the 22 SEAL personnel killed in the crash were part of the team that killed bin Laden in a May raid in Pakistan, but they belonged to the same unit. Their deployment in the raid in which the helicopter crashed would suggest that the target was a high-ranking insurgent figure.

The strike is likely to boost the morale of the

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Immediate toll from downgrade won't be on rates

Standard & Poor's action will put a scare into financial markets and jar the nation's economic mindset

By PAUL WISEMAN
THE ASSOCIATED PRESS

WASHINGTON — The real danger from the downgrade of U.S. government debt by Standard & Poor's isn't higher interest rates. It's the hit to the nation's fragile economic psyche and rattled financial markets.

S&P's decision to strip the U.S. of its sterling AAA credit rating for the first time and move it down one notch, to AA+, deals a blow to the confidence of consumers and businesses at a dangerous time, economists say.

The agency is "striking at the heart of what makes the global economy tick," says Chris Rupkey, chief financial economist for the Bank of Tokyo-Mitsubishi UFJ. "It isn't just dollars and cents."

One economist, Paul Dales of Capital Economics, worried Saturday that the downgrade could trigger another financial crisis that sends Western economies back into a recession.

The timing could hardly be worse for the U.S. The economy added 117,000 jobs in July, more than expected. But other economic indicators, including manufacturing, consumer spending and overall growth, are getting weaker

Precision Castparts has history of safety concerns

Portland-based Precision Castparts Corp. is a classic manufacturing success story in a state that badly needs them.

It joins Nike as one of two Fortune 500 companies based in Oregon, with more than 100 facilities worldwide, including four in the metro area, and hundreds of millions in profits. But success, as with other heavy manufacturers, comes with environmental costs and worker injuries.

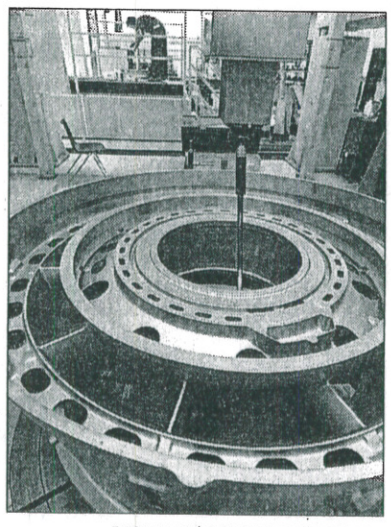
Since 2008, the Oregon Occupational Safety and Health Division has twice raised significant safety concerns at the large parts campus in Southeast Portland where hazardous pollution escaped in May. In 2008, an inspection found eight "serious" violations. The division issued a hazard letter "to address the disconnect that appears to exist" between daily operations and the safety department.

After two injuries that required hospitalization in 2010, the state issued 24 "serious" violations. A report said the violations indicated "a lack of hazard recognition or a gap in the existing programs for recognizing and controlling the hazards." The violations ranged from damaged cords to a high-voltage panel with the door removed.

The campus has had periodic fires and accepted workers' compensation claims averaging 49 a year from 2008 to 2010. A worker died in 2001 after falling into a 236-degree caustic part bath.

Eileen Drake, vice president for administration and legal affairs, said the company hired three more safety specialists at Portland-area plants after the 2008 report.

Fines for the 2008 and 2010 citations were at the low end of the serious category, she noted, and all 2010 violations were promptly corrected.



BOB ELLIS/THE OREGONIAN/2006

Among other business lines, the company makes large parts for aircraft engines, industrial gas turbines and the military.

The Occupational Safety and Health Division incident rate is below the industry's average, Drake said, and May's air contaminant release was the first in company history.

The campus, with buildings totaling more than 600,000 square feet, is complex, fashioning jumbo parts that require tolerances within 5/10,000ths of an inch.

It employs some 1,200 workers on three shifts, at an average hourly wage of $21-plus, making components for aircraft engines, industrial gas turbines and the military.

Workers shape and weld wax molds, dip them in a secret-recipe slurry, then coat them with sand to create a cast that's filled in 2,000-degree foundries with titanium or steel alloys.

Parts are refined in an acidic solution, then tested and X-rayed to spot internal flaws.

The process requires hazardous chemicals. A state fire marshal's tally of substances includes 16 considered acute health hazards.

In 2010, the campus released 126 tons of air pollutants allowed under its permit, including 53 tons of volatile organic compounds and 24 tons of nitrogen dioxide.

It also faces cleanup of old groundwater contamination from the campus near Johnson Creek. State officials say it doesn't threaten Milwaukie's drinking wells.

The state safety division and Department of Environmental Quality are still investigating the May incident.

The DEQ says it probably won't issue fines because the power outage that triggered the release was outside the company's control.

— Scott Learn and Natalie Feulner

"Maybe the Lord was looking down on us. Or maybe we just got lucky."

John Oliver, incident commander for Clackamas Fire District No. 1

Castparts

Continued from Page One

complex, which straddles the Multnomah-Clackamas county line. In more than 50 years of operating at the site, they say, they've never had a similar problem.

"This was a very serious incident for us," said Eileen Drake, vice president for administration and legal affairs. "It turned out really well in that no one got injured. The people here were safe, and they were safe in the neighborhood too."

Firefighters say it was a close call, an illustration of the potential risk when major industrial plants operate amid residential neighborhoods.

They figure contamination did go off-site, though not in visible, highly concentrated form. The wind was not strong, said John Oliver, the initial incident commander for Clackamas Fire District No. 1.

"Maybe the Lord was looking down on us," he said. "Or maybe we just got lucky."

CLACKAMAS FIRE DISTRICT NO. 1

Clackamas Fire District No. 1 and two hazmat teams, one from Gresham and one from Portland, responded to the scene when a chemical cloud was released in May.

Flaws become evident

It's not unusual for the company's large-parts campus in Southeast Portland to report an injury or fire. So the call didn't surprise Oliver, a battalion chief with 27 years in firefighting.

But he was surprised when he rolled up in a Ford F-250 command post to find plant personnel scurrying toward him.

Then he saw a translucent, pumpkin-colored cloud.

"This was the first time I actually pulled up to a scene and thought this could be a picture in a hazmat magazine," Oliver said.

Partial power outages aren't particularly unusual at the plant, either. When they happen, override controls on different pieces of equipment often flip and need resetting. The company has backup diesel generators and can switch to a backup power line. But that evening, contamination in the chemical mill prevented access.

The firefighters huddled with plant engineers. The initial thought, said Clackamas fire Lt. Mike Carlsen: resetting overrides for the hoist and scrubber would take care of the problem.

Two firefighters put on protective suits and oxygen tanks to enter the chemical mill room. But the high-voltage box for the scrubber wasn't accessible without an electrician, the company says, and no electrician at the plant was certified to use the protective gear.

So firefighters pressed the reset button on the hoist. Firing that up could remove the part from the acid bath and end the chemical reaction producing the nitrogen dioxide.

"Then that button was pressed and nothing happened," Carlsen said.

Precision Castparts officials say they're not sure why the hoist didn't turn back on, and they plan to replace its circuitry. Three months later they still use it. It has performed without glitches since the incident, they said.

The sprawling campus dates to the mid-1950s. In more modern plants, backup controls for equipment in hazardous areas are placed outside the room containing hazardous materials.

In this case, the controls and the equipment were all in the chemical mill.

"We were painted into a corner, because everything we needed to get at was in that room," said Gresham hazmat Lt. Tom Gall. "That's why it took so stinking long."

Drake said the company is relocating controls outside the room and evaluating whether they need to be moved in other areas. It has also identified an outside service with an electrician certified in hazmat protective gear who can arrive within two hours, she said.

With efforts to stop the reaction thwarted, the attention shifted to evacuating neighbors within a half-mile of the plant. Oliver said computer modeling indicated contamination would drift toward Portland.

Clackamas County implemented a reverse 9-1-1 to warn residents. In Multnomah County, a supervisor at Portland's Bureau of Emergency Communications did not know how to activate the system, so many residents didn't get called. The bureau says it has corrected the flaw.

Oliver sent a Portland hazmat team, police officers and sheriff's deputies to patrol neighborhoods and talk to anyone outside.

Nitrogen dioxide is classified as an "extremely hazardous substance." Low concentrations can irritate lungs, the Centers for Disease Control says. One or two breaths of very high concentrations is severely toxic.

Very little acid was in the cloud, the company says, and firefighters misidentified some chemicals, saying the cloud contained hydrochloric acid.

Firefighters say they talked with company officials before assessing the threat. It's also not clear whether more acid was created when the nitrogen dioxide hit moisture in the air.

More problems

By 11 p.m., it was clear contamination wasn't affecting neighborhoods. The reaction inside the chemical room, though still ongoing, had diminished. Firefighters met with company officials and decided to wait until the acid bath consumed the part instead of entering the room again.

But three problems arose:

Evacuations: Firefighters instructed the company to clear the titanium plant and set a warm zone around it for workers to stay out. The steel plant next door continued operating to protect millions of dollars of parts.

Yet Carlsen found an employee on smoke break in a shack within the warm zone at 11:30 p.m., and firefighters said they found employees in the zone up to nine hours into the incident. It was "incredibly frustrating," Carlsen said. "When we order an evacuation in a business it's for a good reason."

Drake said the company is considering additional security to better ensure compliance with evacuation orders.

"We own that," she said. "That's on top of the list of things that shouldn't happen again."

Late surprises: Firefighters said workers told them late in the game that "large amounts" of acidic water spilled in the plant because a sump pump was down and could spill more, perhaps into Johnson Creek. They said they also found out late that an argon tank used as a backup for the plant's cooling water circulation system was running low.

Drake said there was at most a small spill of water that may not have contained acid and no danger of contaminants getting to the creek. She thinks firefighters misinterpreted employees, she said: "It wasn't a hazard."

Firefighters eventually entered the titanium plant and reset the sump and the circulation system, restoring them to normal operations.

In the future, Drake said the company will better spell out potential hazards to firefighters in the early stages of an emergency.

Low-level radiation: The next morning, a response crew wanted to take out a wall in the chemical mill to increase ventilation. But a worker warned crew members it might contain radioactive material.

Carlsen, also Clackamas Fire District's radiation specialist, had left and was in bed when a colleague called. "It absolutely ground things to a stop," he said. "At that point, it was really let's sit down and have a discussion about what we need to know."

Drake said the thorium is limited to a clearly labeled old exhaust fan in the wall. The company stopped using it in 1992, though some pieces of equipment are still contaminated. It's safer to keep in them place than try to remove them, she said.

The titanium part fully dissolved in about 24 hours. But firefighters weren't sure the plant was safe.

The company's nitrogen-oxygen monitor would have allowed for a better assessment. But it was in the chemical mill, too. A monitor from Boeing eventually arrived.

Drake said the company has purchased four more monitors and spread them throughout the campus.

Residents want info

For the most part, residents in homes clustered nearby say they feel safe. Several interviewed said the stay-indoors order was an overreaction. But they'd like more information from a company that hasn't communicated much in the past.

"We want to know what's going on there," said Mary King, land use chairwoman for the Ardenwald-Johnson Creek Neighborhood Association. "We're going to need every bit of evidence, because they never talk about what is being done and what's being used."

The company held a joint meeting with fire district and PGE officials in June before the Brentwood-Darlington Neighborhood Association.

Drake said the company, which makes no consumer products, has kept a low profile even while the residential community grew around it. But company officials are concerned about the neighborhood and workers, including many who live close to the plant, she said.

"If it's safe for employees to work here," she said, "then it's safe for the neighborhood."

She said they are working with PGE to figure out failsafes to prevent a repeat and are talking with fire officials. Firefighters said they hope the incident will end up improving the relationship.

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